

**AMENDMENTS TO THE CLAIMS**

Upon entry of this amendment, the following listing of claims will replace all prior versions and listings of claims in the pending application.

**IN THE CLAIMS**

Please amend claim 4, cancel claims 1-3 and 5-12 without prejudice to Applicant's pursuit of these claims in one or more divisional applications, and add new claims 13-62 as follows:

1. (Canceled).
2. (Canceled).
3. (Canceled).
4. (Currently Amended). A method of monitoring a state of a service, the service being mapped to selected ~~composed of~~ components of a network, and the service ~~affecting operation of a business process, supporting a business process under service level management in association with a service level management domain, the business process being performable in connection with a portion of the network,~~ the method comprising the steps of:
  - monitoring at least ~~the network components to determine~~ the selected network components to determine the state of the service supporting the business process under service level management in association with the service level management domain; and
  - monitoring the state of the service to detect a change in the state; and ~~when the state of the service is degraded,~~
  - when the state of the service changes, determining a cause of the ~~degraded change in~~ the state of the service by performing an action, the action comprising one or more of:
    - ~~testing the~~ invoking a routine to determine an operational characteristic of at least one of the selected network components,
    - constructing a database ~~querying of a database~~ to determine the operational characteristic of at least one of the selected network components,

requesting ~~modifying~~ a change to one or more parameters of at least one of the selected network components, and  
implementing a reasoning ~~mechanism~~ ~~algorithm~~ to determine the action to invoke.

5. (Canceled).
6. (Canceled).
7. (Canceled).
8. (Canceled).
9. (Canceled).
10. (Canceled).
11. (Canceled).
12. (Canceled).
13. (New) A method for monitoring a service supporting a business process under service level management in association with a service level management domain, the service level management domain including an enterprise management system comprising an interface configured to communicate with at least one of a network management system, a system management system, an application management system, and a traffic management system, the business process depending on a portion of a network, the method comprising the steps of:
  - associating a component of the network to the service supporting the business process under service level management in association with the service level management domain;
  - monitoring a parameter of the associated network component indicating an operational characteristic of the network component;
  - determining a state of the service from the parameter of the monitored network component; and
  - monitoring the state of the service to provide service level management for the business process.
14. (New) The method of claim 13, wherein the method further comprises a step of, associating a parameter of the service with a parameter of the associated network

component, the service parameter comprising a variable having a state which represents an operational characteristic of the service provided by the network.

15. (New) The method of claim 14, wherein the method further comprises a step of, determining a value for the service parameter from the value of the associated network component parameter.
16. (New) The method of claim 13, wherein the method further comprises a step of, invoking a mathematical simulation of the service to determine the state of the service.
17. (New) The method of claim 13, wherein the method further comprises a step of, invoking a reasoning mechanism to determine the state of the network component.
18. (New) The method of claim 13, wherein the method further comprises a step of, associating an agent with the monitored network component to generate an alarm when a value of a parameter of the monitored network component crosses a threshold.
19. (New) The method of claim 13, wherein the method further comprises a step of, selecting a rule from a repository of rules associated with the state of the service, wherein the rule indicates an action based on the state of the service.
20. (New) The method of claim 19, wherein the method further comprises a step of, invoking the action to implement the selected rule.
21. (New) The method of claim 19, wherein the action comprises a step of, modifying a data structure having a representation of the operational characteristic of the service.
22. (New) The method of claim 19, wherein the action comprises a step of, invoking a database query to determine the operational characteristic of the network component.
23. (New) The method of claim 19, wherein the action comprises a step of, invoking a second reasoning mechanism to determine the operational characteristic of the network component.
24. (New) The method of claim 19, wherein the action comprises a step of, invoking a routine to determine the operational characteristic of the network component.
25. (New) The method of claim 20, wherein the reasoning mechanism comprises a step of, selecting rules from the rule repository and invoking actions to implement the selected rules until the service achieves a desired state.

26. (New) The method of claim 14, wherein the service parameter represents at least one or more of the following operational characteristics of the service:
- availability;
  - reliability;
  - usability;
  - integrity;
  - security;
  - performance;
  - configuration; and
  - status.
27. (New) A system for monitoring a service supporting a business process under service level management in association with a service level management domain, the service level management domain including an enterprise management system comprising an interface configured to communicate with at least one of a network management system, a system management system, an application management system and a traffic management system, the business process being performable in connection with a portion of a network, the system comprising:
- a mapping mechanism for associating a component of the network to the service supporting the business process under service level management in association with the service level management domain;
  - a monitoring mechanism for monitoring a parameter of the associated network component, the parameter indicating an operational characteristic of the network component; and
  - a reasoning mechanism for determining a condition of the service from the parameter of the monitored network component; and
  - a service monitoring mechanism for monitoring the condition of the service supporting the business process to provide service level management of the business process.
28. (New) The system of claim 27, wherein the mapping mechanism associates a parameter of the service with the parameter of the associated network component, the

service parameter comprising a variable having a state which represents an operational characteristic of the service provided by the network.

29. (New) The system of claim 28, wherein a value for the service parameter is determined from a value of the parameter of the associated network component.
30. (New) The system of claim 27, wherein the reasoning mechanism comprises a rule-based reasoning system for determining the condition of the service.
31. (New) The system of claim 27, wherein the reasoning mechanism comprises a model-based reasoning system for determining the condition of the service.
32. (New) The system of claim 27, wherein the reasoning mechanism comprises a case-based reasoning system for determining the condition of the service.
33. (New) The system of claim 27, wherein the reasoning mechanism comprises a state-transition graph reasoning system for determining the condition of the service.
34. (New) The system of claim 27, wherein the reasoning mechanism comprises a codebook reasoning system for determining the condition of the service.
35. (New) The system of claim 27, wherein the reasoning mechanism determines the condition of the service from a mathematical simulation of the service.
36. (New) The system of claim 28, wherein the system further comprises, an agent associated with the monitored network component to generate an alarm when the value of the parameter of the monitored network component crosses a threshold.
37. (New) The system of claim 27, wherein the reasoning mechanism comprises:
  - a data structure holding a representation of an operational characteristic of the service;
  - a rule repository having a rule indicating an operation based on the state of the service; and
  - an inference mechanism selecting the rule from the rule repository applicable to the state of the service.
38. (New) The system of claim 37, wherein the inference mechanism invokes the operation to implement the selected rule.
39. (New) The system of claim 37, wherein the operation modifies the representation of the service in the data structure.

40. (New) The system of claim 37, wherein the operation invokes a query to a database to determine the operational characteristic of the network component.
41. (New) The system of claim 37, wherein the operation invokes a second reasoning mechanism to determine the operational characteristic of the service.
42. (New) The system of claim 37, wherein the operation invokes an inspection of the operational characteristic of the network component.
43. (New) The system of claim 37, wherein the inference mechanism selects rules from the rule repository and invokes operations to implement the selected rules until the service achieves a desired condition.
44. (New) The system of claim 28, wherein the service parameter represents one or more of the following operational characteristics of the service:
  - availability;
  - reliability;
  - usability;
  - integrity;
  - security;
  - performance;
  - configuration; and
  - status.
45. (New) The system of claim 27, wherein the network component comprises a transmission device.
46. (New) The system of claim 27, wherein the network component comprises a transmission line.
47. (New) The system of claim 27, wherein the network component comprises a computer system.
48. (New) The system of claim 27, wherein the network component comprises an application.
49. (New) A computer program product comprising a computer-readable medium having computer logic recorded thereon for enabling a processor in a computer system to monitor a service supporting a business process under service level management in association with a service level management domain, the service level management domain

including an enterprise management system comprising an interface configured to communicate with at least one of a network management system, a system management system, an application management system and a traffic management system, the business process depending on a portion of a network, the computer program adapted to cause the computer system to perform the steps of:

associating a component of the network to the service supporting the business process under service level management in association with the service level management domain;

monitoring a parameter of the associated network component indicating an operational characteristic of the network component;

determining a state of the service from the parameter of the monitored network component; and

monitoring the state of the service to provide service level management for the business process.

50. (New) The computer program product of claim 49, wherein the computer system further performs a step of, associating a parameter of the service with a parameter of the associated network component, the service parameter comprising a variable having a state which represents an operational characteristic of the service provided by the network.
51. (New) The computer program product of claim 49, wherein the computer system further performs a step of, determining a value for the service parameter from the value of the associated network component parameter.
52. (New) The computer program of claim 49, wherein the computer system further performs a step of, invoking a mathematical simulation of the service to determine the state of the service.
53. (New) The computer program of claim 49, wherein the computer system further performs a step of, invoking a reasoning mechanism to determine the state of the service.
54. (New) The computer program of claim 49, wherein the computer system further performs a step of, associating an agent with the monitored network component to generate an alarm when a value of a parameter of the monitored network component crosses a threshold.

55. (New) The computer program of claim 49, wherein the computer system further performs a step of, selecting a rule from a repository of rules associated with the state of the service, wherein the rule indicates an action based on the state of the service.
56. (New) The computer program of claim 55, wherein the computer system further performs a step of, invoking the action to implement the selected rule.
57. (New) The computer program of claim 55, wherein the computer system further performs a step of, modifying a data structure having a representation of the operational characteristic of the service.
58. (New) The computer program of claim 49, wherein the computer system further performs a step of, invoking a database query to determine the operational characteristic of the network component.
59. (New) The computer program of claim 53, wherein the computer system further performs a step of, invoking a second reasoning mechanism to determine the operational characteristic of the network component.
60. (New) The computer program of claim 49, wherein the computer system further performs a step of, invoking a routine to determine the operational characteristic of the network component.
61. (New) The computer program of claim 49, wherein the computer system further performs a step of, selecting rules from the rule repository and invoking actions to implement the selected rules until the service achieves a desired state.
62. (New) The computer program of claim 49, wherein the service parameter represents one or more of the following operational characteristics of the service:
  - availability;
  - reliability;
  - usability;
  - integrity;
  - security;
  - performance;
  - configuration; and
  - status.